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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	Hajime KAWANO et al.
Serial No.	:	09/315,988
Filed	:	21 May 1999
For	:	ELECTRON BEAM LITHOGRAPHY SYSTEM
Group Art Unit	:	2881
Examiner	:	K. Fernandez

ASSISTANT COMMISSIONER
  FOR PATENTS
Washington, DC 20231

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RESPONSE TO OFFICE ACTION

In response to the Office Action mailed 30 January 2001, applicants hereby submit the following comments and explanations. The initial three-month response period expired on 30 April 2001 and is being extended herein to 30 May 2001.

Claims 1-10 stand rejected under 35 USC 103(a) over Murai et al. This rejection is respectfully traversed.

Murai et al. does not disclose or suggest judging means for judging whether the shot in question straddles a plurality of meshes, as recited in independent claims 1 and 10 of this application. The office action asserts that Murai describes the problem and defines a means to correct it, and that therefore, Murai would suggest the addition of the judging means, or that the judging means would be inherent. These assertions are respectfully traversed for the reasons set forth below.

The claimed invention includes the judging means for judging whether the shot in question straddles a plurality of meshes. The claimed invention makes this determination based on positional relations between coordinates of two diagonally

positioned edge points of each shot and the mesh boundaries (claim 2). For example, as illustrated in Fig. 5, a judgment is made of whether the shot in question straddles a plurality of meshes based on the bottom left end point 51 and a top right end point 52 of shot 50 and the mesh boundaries.

In contrast, Murai does not teach or suggest judging means for judging whether the shot in question straddles a plurality of meshes. Murai instead teaches that the density of one mesh is interpolated by the four densities nearest to each exposure shot and the exposure time is modified according to equation (5) and the interpolated area density. See p. 3073, col. 2, lines 12-19. Thus in Murai, it is irrelevant whether the shot straddles a plurality of meshes, as Murai will always interpolate the density of a mesh based on the densities of the four nearest meshes, regardless of whether a shot straddles a plurality of meshes. Accordingly, there would have been no motivation to modify Murai to include judging means for judging whether the shot in question straddles a plurality of meshes.

Further, Murai does not recognize the problem of a shot in question straddling a plurality of meshes, as asserted in the office action. Instead, Murai indicates that the mesh boundary may be divided into several small regions with different area densities and that the optimum dose is determined assuming a uniform pattern density. See 3073, col 2, lines 21-28. These problems are of different densities in divided meshes, and not of a shot straddling the mesh. Murai is unconcerned and does not determine whether a shot straddles a mesh, but instead corrects the density of meshes.

Because Murai is unconcerned with and does not determine whether a shot straddles a mesh, and does not provide any motivation for such a modification, it would not have been obvious to modify Murai to include the judging means recited in claim 1. Accordingly, it is respectfully requested that the rejection under 35 USC 103(a) be withdrawn.
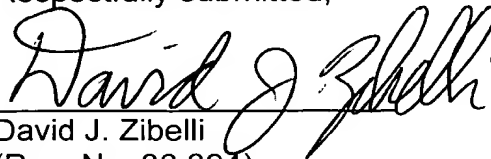
A one-month extension of time to respond to this Office Action is requested. Please charge Deposit Account No. 11-0600 in the amount of $110.00 to cover the fee for a one-month extension of time.

Should there be any question concerning this matter, the Examiner is invited to contact the undersigned.

Respectfully submitted,

Dated: 5/11 ,2001

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